OPERATIVE TREATMENT OF CANCER IN THE FEMALE GENERATIVE ORGANS, INCLUDING THE UTERUS AND VULVA.

By JOHN HOMANS, M.D.,

OF BOSTON,

SURGEON TO THE MASSACHUSETTS GENERAL HOSPITAL.

CANCER is prone to grow faster in some localities than in others. In the uterus and large intestines it grows slowly; in the clitoris and adjacent parts it grows rapidly, as a rule. I believe the uterus is, next to the breast, the organ most frequently affected by cancer; but primary cancer of the clitoris and vulva is quite rare; at least it has been so in my experience. In considering the subject of cancer of the female generative organs, I will take the organs in their natural sequence, beginning with the ovaries, to which the uterus and vagina are appendages. As I have said elsewhere, we ought to say the ovaries and their appendages, not the uterus and its appendages. The ovaries are the reigning organs, and the uterus and vagina are simply channels for the growth and birth of the ovum, the product of the ovary.

As a general rule, cancer of the ovary occurs as a degeneration of a cystoma, or else it is only a part of a cancerous affection of all the abdominal organs, and is irremovable. Operations in these latter cases are either incomplete or fatal, and always unsatisfactory. In a hasty search through my records I find sixty-three cases of cancer of the ovary, observed after the abdomen was opened; the great majority of them were but parts of a general abdominal cancer and were not meddled with. Occasionally, however, the ovaries are the seat of primary cancer, unaccompanied by any cystic formation, and this cancerous

disease may grow for a time at least independently of other organs. In my experience, cases of this character have usually occurred in elderly women from fifty to seventy years of age, and the tumors are somewhat larger than the fist. The ovarian cystomata are nearly allied to cancer. Those patients who recover from simply ordinary ovariotomy are subsequently attacked with fatal cancer of the cicatrix or of the internal organs in ten per cent. of the cases. At least this has been the fact with that proportion of my successful cases, whose subsequent history I have been able to trace.

When a cancerous growth affects one ovary only, or, if affecting both, has not affected other organs, the tumor may be removed with a fair prospect of prolonging life, for some years at least, and perhaps of effecting a cure. Such tumors should be removed with as much of the broad ligament and tube as possible. I can recall at least five instances in which cancerous tumors of the ovary, but slightly adherent, have been removed by me. These tumors were pronounced carcinomatous by Dr. W. F. Whitney.[1] One patient is alive and well, with no external evidence of return of the disease eighteen months after operation. Of the others, two are dead, and two have only lately been operated upon.

There are several varieties of cancer of the uterus, the most common being epithelioma, medullary carcinoma, and adenocarcinoma. Epithelioma of the cervix is most frequent, its symptoms are well known, and I will not enumerate them. The lymphatics from the os and neck go to the obturator and inguinal glands, and those of the body go to the internal iliac, sacral, and lumbar glands. The uterus is especially rich in lymphatics. An operation for removal of a cancer of the uterus, of whatever variety, must include the whole organ; but this, with the removal of the ovaries, tubes, and broad ligaments, is all we can do. There is no opportunity for the removal of a wide margin of tissue or of affected glands. The uterus is bounded so completely by organs whose integrity cannot be encroached upon that the surgeon's task is necessarily confined

[1] Pathologist to the Massachusetts General Hospital.

within narrow bounds. The bladder in front, the rectum behind, and the ureters on each side completely surround the uterus, and the integrity of these neighboring organs cannot be disturbed. In operating, the tendency to-day is to follow the vaginal route.

I take it that it is unnecessary for me to describe the table to be used in an operation for the removal of a cancer of the uterus, except that one needs a table somewhat higher than the ordinary, and one that can be used in the Trendelenburg position if we wish to do so. Nor is it necessary to advert to the previous examination of the urine, the sterilized towels to be placed about and around the field of operation, the necessary instruments, the kind of retractors, etc. Our subject is rather the kind and extent of the operation demanded by the disease than a minute enumeration in an elementary manner of all the preparations and appliances. Suffice to say, that I will suppose every precaution has been taken to insure an aseptic operation. Nor is it necessary to give an elaborate description of the etiology and symptoms of cancer of the uterus.[1] These have been well described by many authors, particularly by Hermann J. Boldt in the work on "Clinical Gynæcology," edited by Keating and Coe.

I usually have my hands manicured the day before an operation, so as to have the nails and fingers smooth and clean, and I usually follow Dr. Howard A. Kelly's method of washing the hands and arms with permanganate solution, oxalic acid, peroxide of hydrogen, and corrosive sublimate, after thoroughly scrubbing with soap and water. We will suppose the diagnosis to have been made, the kind of operation decided upon, and the surgeon and patient ready for the operation. I always put the patient in the lithotomy position.

In regard to the method of operating. It is my belief that in removing cancerous disease of the uterus, in operable cases, the entire organ should be removed. One must decide whether

[1] The anatomical relations of the uterus are well described by Dr. M. H. Richardson in the Boston Medical and Surgical Journal, November 2, 1893.

the organ can be removed, or whether the disease has advanced so far that this cannot be done. In cases in which a thorough radical operation is impossible, the surgeon must be contented with thorough curetting and thorough cauterization with the Paquelin or thermo-cautery. In removing the entire uterus, however, the first question to be decided is whether we will pursue the vaginal or abdominal route. For myself, I follow the vaginal route by preference, but if, because of its enlargement or for any other reason, I cannot get the uterus out through the natural passage, I do a combined operation and open the abdomen. The patient is prepared by a proper diet for forty-eight hours; the bowels are emptied by a cathartic and by enemas. The hair is shaved from the mons veneris, vaginal and anal regions, and the abdomen is prepared as for an aseptic laparotomy. This is done in case we find, either from the size of the uterus or from some other complication, that we cannot remove it through the vagina and may be forced to open the abdomen and remove the organ through an abdominal wound. *Everything* to be used in contact with the patient should be sterilized. The patient is clothed in a sterilized flannel suit, which helps to ward off and prevent shock, and this suit is left on for two days after the operation, unless it is found to be too hot and burdensome. The vagina is disinfected with antiseptic soap and water, and with douches of bichloride solution 1 to 5000 or 10,000, and just before making the incision of the vaginal mucous membrane the uterus is thoroughly curetted. This is done under irrigation at first with a mild bichloride solution, and later with boiled water. After the uterus has been cleaned of foul cancerous growth as thoroughly as possible and irrigated, its interior should be swabbed out with pure carbolic acid. I like very much to pass a long, strong ligature of silk through the neck of the uterus and sew up the open os, and use this ligature as a tractor. It is much smaller, more handy, and less in the way than a pair of large double-hooked or single-hooked, so-called bullet-forceps, but we can only do this when the cancer affects the body of the uterus alone, as any traction by a ligature on a diseased cervix is usually followed by the

tearing out of the ligature. With adeno-carcinoma this strong ligature of silk can be used, as the neck is usually unaffected in this form of disease. I usually use three of these tractors of silk, which close the canal of the uterus and so prevent the uterine contents from pouring out and affecting the field of operation. These stout ligatures give a firm and unobstructive means of traction. In the ordinary cases, however, when the os and neck are more or less fragile and rotten, we must use double-hooked forceps, or the single-hooked ones that go by the name of bullet-forceps.

A sound should first be put in the bladder to ascertain the outline of the bladder walls, and this manœuvre may be repeated from time to time, then an incision should be made close to the bladder and around the os beyond the vaginal surface. Next, the mucous membrane should be separated from the cervix, and the bladder must be carefully pushed up and isolated from the uterus. A better hold of the cervix is now possible, if we are using forceps as tractors, as some of it is exposed by the separation of the vaginal mucous membrane. Before the peritoneum is opened above the uterus, the mucous membrane between the os and the rectum should be cut through and Douglas's cul-de-sac should be opened. As soon as this has been done, a sponge with a long ligature attached should be thrust into the peritoneal cavity to keep the fat and intestines from protruding and to absorb any blood that may be poured out. The finger should then, if possible, be passed over the fundus of the uterus from behind to serve as a guide in opening the anterior cul-de-sac. If the surgeon cannot pass his finger over the fundus he must pass it by the side of the body. For separating the bladder from the uterus, we may use the finger more or less, or a blunt dissector, or the scissors, or a spade-shaped instrument, the spade part of which is about three-quarters of an inch wide, and the handles about four inches long. This instrument is often supplied as a periosteum elevator among the instruments for cerebral surgery.

When the anterior cul-de-sac has been opened, either with or without the guidance of the finger from below, a sponge with a

ligature attached should be passed in through the anterior opening. The separation of the bladder is much facilitated by the insertion of a metal retractor between the uterus and bladder, which an assistant pulls up under the pubes. During all this manipulation irrigation with boiled water should be continually or frequently practised. The anterior and posterior culs-de-sac having been opened, the tissues on either side of the uterus are torn through with the fingers as far as seems safe without causing hæmorrhage from arterial branches.

The shining peritoneal covering of the uterus is now seen through the anterior opening, and the body may be dragged down from above by successive bites of the bullet-forceps, until the fundus is rotated forward. If the ovaries and tubes follow readily or can be pulled down, they should be removed also with the uterus. After the fundus is rotated forward, compressing forceps with blades at least two inches long should be locked on each side of the uterus from above downward, squeezing the broad ligaments tightly, and the handles of these forceps should be tied strongly together to prevent them from springing apart. The broad ligaments are then divided with scissors, one-eighth to one-quarter of an inch outside—*i.e.*, on the uterine side—of the clamps to prevent retraction, and then the uterus and ovaries also, if possible, should be removed. It is generally better to tie the broad and ovarian ligaments when the ovaries are pulled down. If any bleeding points are seen after the uterus has been removed they should be tied or secured by forceps. I have always used forceps in performing vaginal hysterectomy, but many, perhaps most, surgeons prefer to tie the broad ligaments with silk or catgut. With forceps the uterus is removed more rapidly than when one ties successive portions of the broad ligaments. If the disease extends beyond where forceps should go the operation is not likely to be of any use, as the lymphatics are probably involved. The forceps serve as channels of drainage and keep the vaginal wound from uniting and shutting up septic material within the peritoneal cavity. I never put gauze in the vagina; it becomes very offensive in a few hours and is difficult of removal, and rather obstructs than

helps drainage. The sponges that we have placed in Douglas's cul-de-sac and in the pubic region are now pulled out of the abdomen by means of the ligatures, which we have been careful not to have caught and entangled in the compressing forceps which we are going to leave on the broad ligaments. I use only one pair of forceps on each side, as a rule, but many use another pair for the ovarian arteries. A little iodoform or sterile gauze is put around the forceps-handles next to the vulva, and a pad of absorbent cotton is put on the bed for the handles to rest on. No stitches are used to unite the mucous membrane and peritoneum; this union takes place of itself, and we do not want to imprison infectious material. At the end of ten days there is simply a cone-shaped cavity at the upper part of the vagina, where the tissues have become united. No ligatures suppurate out or delay healing, for there are no ligatures. Another excellent way of operating is to tie and cut the broad ligaments piecemeal in successive steps, dragging down the uterus and bringing successive portions of its attachments into view until all of them have been tied. Usually four ligatures are enough, one for each uterine and ovarian artery with the adjacent broad ligament.

This method can also be followed when we use clamps, successive portions of the uterine ligaments and attachments being secured in different clamps. The number of clamps or compressing forceps that one leaves on the ligaments is a matter of indifference, and it is surprising how little pain and discomfort there is after this operation; the patient is generally unaware that she has any clamps in her vagina or any handles protruding. The clamps should be removed after thirty or forty hours, though I have known the handles to break spontaneously the night after an operation and no hæmorrhage to follow. No forcible vaginal douching should be practised at the time when the clamps are removed. I have noticed intense pain and shock to be caused by a douche given at this time. Dr. Cleveland, of New York, has well described the method of removal by successive ligature, and Dr. Boldt that of removal by means of ligatures, accompanied by suturing together of the peritoneum

and vaginal membrane, making his operation almost extraperitoneal. Often one cannot rotate the fundus either forward or backward, and the round ligaments and upper part of the broad are either secured in clamps or ligatures before their division, when the uterus is pulled down, or are tied or clamped when they come wholly down and out of the vagina with the fundus. When it is thought necessary to resort to the combined abdominal and vaginal method, it is best to begin in the vagina by separating the bladder as far as possible, and the rectum also, before opening the abdomen. In this case we must employ two surgeons, or else the single one must thoroughly redisinfect his hands and arms in the manner already described before opening the abdomen. One surgeon is, I think, better than two, as the responsibility is not as much felt, and the operation is not as well performed by two men as by one. In regard to the method of operating *à la* Kraske by resecting the sacrum, I have had no experience, but if a uterus could only be removed by this method I should think it was too much diseased and the neighboring tissues too much involved to permit of its being removed at all with any hope of cure. Contrary to the advice of most operators, I raise the head of the bed for a day or two after operating so that gravity may have more force in insuring drainage. In connection with this subject, I cannot refrain from referring to Dr. Lewis S. Pilcher's[1] excellent article on cancer, a most valuable contribution to our knowledge of the clinical results of interference with cancer of the female genital organs.

The cases of adeno-carcinoma almost invariably recover from the operation and are almost always cured. The only hope of curing the other varieties lies in seeing the case before the neighboring structures are involved, so that the removal of the entire uterus, and, when possible, that of the ovaries and tubes also, may possibly put an end to the disease. My own experience in operating for cancer of the uterus has not been extensive. I have removed by vaginal hysterectomy sixteen cases of epithelial cancer, and six of adeno-carcinoma. Of the sixteen cases of epithelial cancer six are living and ten are dead:

[1] ANNALS OF SURGERY, July, 1894.

One case is alive, state of health unknown, five years after operation.

One case is alive four years after operation, with a very slight recurrence. But the woman looks strong and robust, and her health is perfect.

One case is alive two years and one month after operation; in good health.

One case is alive fourteen months after operation; in good health.

One case is alive four months after operation.

One case is alive three months after operation.

This is a better result than I thought I should find when I sent out letters of inquiry; still, it is not encouraging. All of the remaining ten died within a year of the operation, three within a week, all hopeless cases.

Out of the six cases of adeno-carcinoma five are living and well, without recurrence, and one died from the effects of the operation. I am rather surprised to find that it has not been my simplest and least affected case that has lived the longest. During the removal of the uterus in the case now alive five years after operation, the organ tore in halves and I spent much time in finding and getting out the fundus, which had receded among the bowels, and required much bimanual effort for its recovery; while another case, in which the disease was apparently well-defined, and wholly in the os and cervix, died within a year.

As I said earlier in the paper, if the surgeon finds infection of the structures surrounding the uterus and does not deem hysterectomy of any use, he can curette out all the diseased tissue he can reach, and burn and sear the remainder with the cautery. In this way I have often relieved women of hæmorrhage and discharge for several months. One case lived for three years after curetting and cauterization, but her life was one of great suffering and she consumed an immense amount of morphine, at last taking 120 grains hypodermically in twenty-four hours. Even when cancer does return after a successful and radical hysterectomy, it grows with less pain than it caused originally, as a rule, and the woman is spared much discomfort.

Cancer of the vagina is seldom primary, but at times, very rarely, we meet with it as such. I recall but one case where there were discrete patches of cancer which were thoroughly removed with a wide margin, and in which the woman gained much flesh and strength. The disease never returned in the original site, but the patient died with infection of the inguinal glands, and presumably of the internal organs, in about eighteen months. Cancer of the vaginal mucous membrane should be radically removed as soon as seen. Cancer of the clitoris and urethra, or rather of the meatus, always returns rapidly, and it is of no avail to remove these growths except to get rid of a bloody and offensive discharge for a short time. At least this has been my experience.

With primary cancer of the labia the prospect is better, and sometimes we see the disease when it is confined to the labia alone. The disease is extremely rare, but I recall one case where symmetrical, epitheliomatous tumors on both labia were found to be attached by a long, rather narrow, perfectly defined bases parallel with the long axes of the labia ; these were removed easily with a wide margin of sound tissue, without much hæmorrhage. The patient, seventy-three years old, recovered completely, and died eight months after of apoplexy, no local recurrence having taken place.